CORNING GLASS WORKS
ELECTRO-OPTICS DEPARTMENT
RALEIGH, NORTH CAROLINA

IMPROVED SCREEN FOR REAR-PROJECTION VIEWERS

Technical Report No. - 36

Date - January 3, 1969

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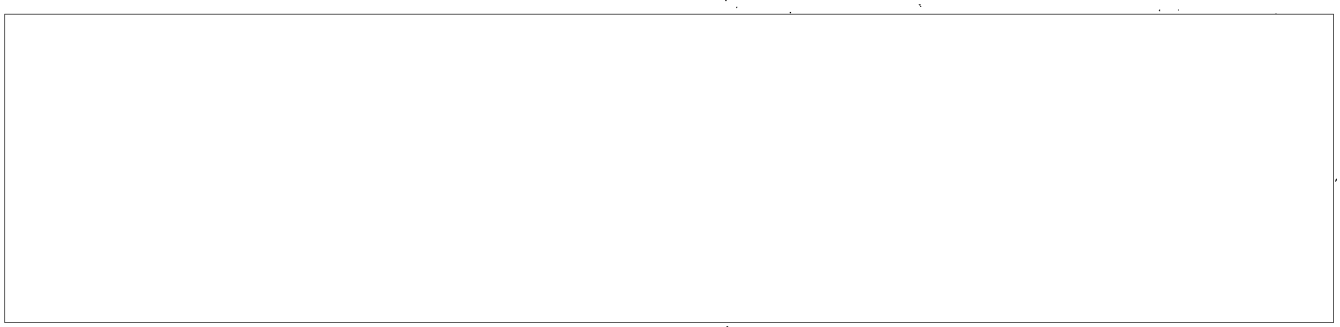

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ABSTRACT

The fabrication of the 12-1/8" x 15-1/8" optimum scattering-type screens described in the preceding report is in progress. Improved antireflection coatings have been found to be available. Suitable glass substrates have been sent out for anti-reflection coating. A casting knife of the proper size is under construction in our shop. Both theoretical and practical analysis of lenticular screens is being pursued.

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TECHNICAL REPORT NO. 36

I. Scattering Screens

Work is continuing on the 12-1/8" x 15-1/8" optimized scattering-type screens described in the previous reports, P-34 and P-35. Clear and grey glass substrates have been sent out for high efficiency antireflection (HEA) coatings. Samples of these coatings have been compared with the previously-described antireflection coatings (P-34 and P-35) and the HEA coatings have been found to be clearly superior at the edges of the visible spectrum — no purple bloom is visible with these coatings. To avoid the necessity of grinding and polishing to obtain desired transmittance values, the HEA coating is to be applied to one substrate and the screen coating to a second substrate. The two substrates will then be oiled together with an index-matching liquid. In this way transmittances of 100%, 71%, 47%, 33% and 22% will be obtainable.

With regard to the screen coatings, the index of the glass scattering particles and the glass-to-binder ratio will be varied to obtain various axial gain values. The casting knife has been designed and is being made in our machine shop.

II. Lenticular Screens

Of the various proposed approaches to fabricating a lenticular screen, the plastic crossed cylindrical lens scheme should be the easiest to fabricate. Inquiries are being made into the feasibility and methods of forming plastic into the desired contour. Meanwhile, analysis of the other approaches is being continued.